

*On some Rare Arachnids captured during 1907.*

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(Plate IV.)

During the extremely unpropitious season of 1907 I have had small time for, or opportunity of, doing outdoor work. Some of my correspondents, however, have been more active, and by their assistance a good many interesting species have been got together. Three of these are new to the British fauna. The first is *Maro Falconerii* sp. nov. This is a most minute spider, and has been found by Mr. W. Falconer and myself in Cheshire and Yorkshire. The second, *Ischnothyreus velox* sp. nov., was discovered by Mr. R. S. Bagnall in a hothouse at Alnwick. Subsequently I found it in a similar situation in Chester, and Mr. Bagnall rediscovered it in one of the hothouses at the Botanical Gardens, Kew. It is almost certainly not indigenous, but seems to be establishing itself in suitable situations throughout the country. Its small size and extreme rapidity of foot favour its survival, but have probably delayed for some time its detection and capture. The third species, *Bianor ænescens* (E. Sim.), has been found by Mr. W. H. Bennett in Surrey. It is an Attid or leaping spider, and has occurred in several European countries. No doubt it is a genuine member of our fauna.

After these three novelties, three other species claim the chief interest. In each of these, *one* sex was previously known in Britain, and the other is now recorded for the first time as a native. The first of these is *Maro minutus* (Camb.). Mr. Falconer had discovered the female at Huddersfield in 1905. This year he found both sexes in the same locality, the male being new to science. The second species is *Gongylidiellum paganum* (Sim.) Both sexes of this interesting spider were sent to me by Mr. D. R. Pack-Beresford, by whom they were found near Bagenalstown in Ireland. The male had previously been found near Huddersfield by Mr. Falconer, and the Irish females were identical with one sent to me by that gentleman

several years ago, and which at that time I believed to be the genuine female of *G. paganum*. This belief is now confirmed, and I here figure the female of this small and interesting species, which sex is new to Britain. The remaining spider is *Epiblemium affinitatum* (Camb.) This was obtained in Surrey by Mr. W. H. Bennett, and he succeeded in finding both sexes. One example of the male had previously occurred in Dorset in 1860, whilst the female is new to Britain, and is possibly hitherto undescribed.

Thus I am here recording three species entirely new to Britain of which two are new to science. Also three further species of which one sex is new to our fauna, and at least in one case, to science.

Further, I here figure the female of *Cnephalocotes pusillus* (Menge) which, in Britain at all events, has been up to now confused with that of another species.

Various other rare and local forms are referred to in their appropriate places.

Since this paper has been in the press I have received examples of a Tartarid new to science. Several specimens of this were found in a hot conservatory at Kew and sent to me by Mr. R. S. Bagnall. It undoubtedly belongs to the genus *Trithyreus* (Kraep.), and I have called the species, which is a very distinct one, *T. Bagnallii*. It was too late to get any figures of this interesting Arachnid into the present paper, so I content myself now with a short preliminary description which will be found in an appendix at the end. I hope soon to publish some figures as well as some more remarks on this animal.

I must take this opportunity of thanking those of my correspondents who have collected so many of the forms here recorded. These gentlemen are Messrs. Falconer, Bagnall, Bennett, Britten, Varty-Smith, Pack-Beresford, and F. J. Cole. Mr. Wallis Kew has examined several of the Pseudoscorpions, and the Rev. J. E. Hull has looked up various references for me. Finally, four well known arachnologists have examined

and reported on my new species. My thanks therefore are due to the Rev. O. Pickard-Cambridge, M. E. Simon, Prof. W. Kulczynski, and Prof. H. J. Hansen.

**Ischnothyreus velox** sp. nov. (Family Oonopidæ.)

Plate IV., figs. 9, 10, 11, 12, and 13.

Length nearly 2 mm. Facies somewhat resembling that of *Oonops pulcher* (Templ.) The male is rather slenderer than the female, but is not much shorter.

CEPHALOTHORAX is of a rather dark yellowish-brown, much darker than the abdomen or legs. The depth of colour, however, varies in different individuals.

In the *female* the profile begins to rise immediately behind the eyes and ascends in an inclined plane to the thoracic juncture. It then descends rapidly in a somewhat hollow form to the pedicle.

In the *male* the profile rises suddenly behind the eyes in a strongly gibbous form, the highest point of which is at least as high as the thoracic juncture. Between the eyes and the latter point the outline forms a distinct arc. At the thoracic juncture it descends as in the female sex. In both sexes striæ radiating from the thoracic juncture mark the position of the sutured cephalothoracic segments. On each side of the anterior part of the cephalothorax, about the level of the occiput, a somewhat pyriform space is mapped out by a faint line. The pointed end of this space terminates on each side at the margin of the cephalothorax, near the coxa of the first pair of legs. The whole surface of the cephalothorax is somewhat granular.

The EYES are six in number. All are large and placed upon black spots. The four posteriors are arranged very nearly in a straight line. The two anteriors, obliquely placed, are contiguous on the one hand with the posterior laterals, and on the other each touches its fellow. The enclosed space is deeply pigmented, and the whole ocular area is strongly hirsute.

The CLYPEUS is extremely narrow. It is in fact narrower than each anterior eye.

The FALCES are rather weak, the proximal joint is somewhat conical, being much narrower at the apex than at the base. The distal joint is long and slender.

The STERNUM is broadly heart-shaped, of a clear yellow-brown colour, and besprinkled with long hairs. It is not, or only very slightly, provided with bays corresponding to the coxæ of the walking legs.

The LABIUM is of the same colour. It is short and almost square, with its anterior border rather concave.

The MAXILLÆ differ very much in the two sexes. In the *female* each is of the same colour as the sternum and labium. Each is strongly inclined to the lip, with an almost squarely-cut anterior border, and with a broad, rounded-off, antero-internal angle. In the *male*, however, this angle is drawn out into a fine point, and the anterior border presents in addition a rounded tuberculiform process. The internal border is thickened and of a dark colour. Owing to this tapering of the antero-internal angle the rostrum is distinctly visible rising above the labium.

In connexion with the latter organ, I was quite unable to see any lateral processes springing from it and separating the maxillæ from the sternum as described by M. Simon\* in an allied species.

The PALPI of the female are simple; the tarsus is longer than the tibia and patella together. It is acuminate, very hairy, and bears no terminal claw. The palpi of the male are very curious. They are dark brown, nearly black, in colour, and are carried bent outwards in a very remarkable manner as shewn in figure 13. The femur, tibia, and patella are short, broad, and almost similar. There is a little variation in different individuals, but in figure 13 the femur and patella are probably shown a trifle too long. The tarsus is slightly

\* Histoire Naturelle des Araignées, vol. i., p. 231.



larger, but only embraces the base of the palpal organs. These are somewhat pear-shaped, and terminate in a stalk bearing one or two minute spine-like apophyses.

The legs are of a clear yellow-brown colour. The order of lengths is 4, 1, 2, 3, but there is not much difference between 1 and 2.

The COXÆ do not fit into hollows in the sternum, but are separated from that structure by a pale chitinous area which extends between contiguous coxæ, and also separates the sternum from the maxillæ, and those organs from the labium. All the coxæ bear a ridge below near the apex.

The TROCHANTERS are all small.

The FEMORA are strong, hairy, and somewhat acuminate; those of the first pair bear two strong spines on the inner border near the apex. This is an important specific character.

The PATELLÆ are short, and similar one to another.

The TIBIÆ are cylindrical. In the first and second legs each bears below two parallel rows of four long spines. These are very strong, and each lies in the direction of the long axis of the leg. These are not present on the third and fourth legs.

Similarly the METATARSI of the two posterior pairs are unarmed, whilst those of the first two pairs bear beneath two parallel rows of spines. These are similar to, but smaller than those of the tibiæ, but each row contains only two spines.

The TARSI are rather short. In the case of the third pair they are about half as long as the metatarsi, but in the others they are even less than this. Near the apex of each there is a deep constriction separating off a terminal subjoint. This is small, is covered with hairs, many of which possess lateral barbs, and terminates in two toothed claws. This description of the legs is taken from female specimens.

The ABDOMEN is of a greyish yellow-brown or clay colour, and is covered with long hairs. It is provided above with a dark brown, shining, horny scutum. This is of a somewhat

oval shape, but the sides are almost parallel. It extends from the anterior end to about the middle of the dorsal surface, but as it is rather narrow it does not occupy the whole breadth of the abdomen. It is nearly squarely truncated behind in the female, in which sex it is rather less in length than in the male. In the latter sex the posterior border is slightly more rounded. It is always covered sparsely with hairs similar to those borne by the surrounding abdominal integument. This structure is known as the *dorsal scutum*. On the ventral surface there are two scuta, but these are much more of the colour of the surrounding integument, and being obscured by hairs, are in some specimens rather difficult to see. They are of a pale yellowish brown colour, and do not contrast sharply with the clay-coloured ventral surface. The arrangement of these two scuta is quite different in the two sexes.

In the *female*, the first or *epigastric* scutum covers the epigastric region, and extends laterally over the pulmonary sacs to completely embrace the pedicle. It terminates behind in a slightly concave border which forms the anterior boundary of the long transverse *rima genitalis* or sexual aperture. On each side of its lower border it bears a spiracle, which looks downwards, slightly backwards and outwards, and which opens into a pulmonary sac. The rima is bounded behind by the *ventral scutum*. This is short and semicircular. The anterior border is nearly straight, and bounds behind the rima genitalis. The posterior border is convex, and is continuous with the chitinous lips of each posterior spiracle. The scutum is divided into two parts by a prominent, boat-shaped, downwardly directed process. On each side this is continued into a ridge running transversely outward. At a point about two-thirds of the distance between the centre of the scutum and its lateral border each ridge terminates in a minute pore-like aperture. With a one inch objective these appear as black dots. On a specimen eviscerated, treated with liquor potassæ, and examined in glycerine, each was seen to be the aperture of a tube-like organ seated under the chitin of the scutum. These apertures possess prominent chitinous

lips which are continuous with the aforesaid ridges. The tubes into which they lead are slightly curved, unbranched, and tapering. They are rather long, reaching to the posterior border of the scutum, to the back of which they are closely applied. Examined with a Leitz 7 lens they appear opaque, and certainly show no signs of irregular, annular, or spiral thickenings. I can form little or no idea as to their functions. They may perhaps be glands secondarily connected with the sexual apparatus. I have never seen descriptions of them. In the centre of the boat-shaped process there is a curious pigmented, convoluted, beaded band. This rises at the apex of the process, runs straight forward to its base, and then becomes curiously twisted. Its convolutions are extremely different in pattern and extent in different individuals, but it was present in all my examples, and always extended on to the anterior part of the scutum, generally reaching nearly to the rima genitilis. It gives the impression of an adherent secretion squeezed out of some tubular gland seated in or below the process itself. I could however see no trace of such an organ, and it does not seem to be detachable. It has no connexion with the two lateral pores, and certainly does not exist in the male. The posterior spiracles are placed laterally at the posterior border of the scutum, which consists of a curved chitinous band convex behind. This border appears to be neither raised above, nor depressed below, the level of the surrounding structures. These spiracles are as wide apart as are their anterior fellows. They are as independent as the similar apertures in the *Dysderidæ*, and by no means open into any single, median, common vestibule. Each spiracle is rather elongated transversely, and possesses chitinized lips. In each the anterior lip is much more pronounced than the posterior one, and a process projecting downwards from the former somewhat constricts the lumen of the aperture. Each posterior spiracle opens into a large tracheal trunk; this first gives off several branches which run backwards for a short distance towards the middle of the abdomen, and then turning forwards goes

towards the cephalothorax. The whole surface of the ventral scutum bears plenty of coarse hairs.

Lamy\* in his description of the tracheæ of the Oonopidæ utilizes as types *Dysderina loricata* (E. Sim.) and *Oonops pulcher* (Templ.). I know nothing of the former spider. I have however spent some time examining the respiratory organs of our indigenous Oonops, and cannot altogether agree with Lamy's account. He states that instead of two separate tracheal stigmata he sees a transverse slit dilated at its extremities into two orifices. Each of these possesses two strongly chitinized lips. The transverse slit leads into a deep fold in the integument which is prolonged at its extremities into two tracheal trunks. What really exists is as follows.

There undoubtedly is a transverse shallow groove running across the abdomen almost parallel with the rima genitalis. This again is undoubtedly dilated in a somewhat oval form at each lateral extremity. But the spiracles are perfectly distinct and independent. Each opens at the very extremity of the dilated terminations of the groove, from which it is distinctly separated by its strongly chitinous internal lip. Each is irregularly oval and bears a small projection on its anterior lip. Each leads into a separate tracheal trunk like those of *Ischnothyreus*. The groove itself is very shallow, and its floor is formed of rather thin chitin. It leads into no tracheæ, nor are its dilated ends spiracles. It is in fact the same structure as the curved chitinous band which in *Ischnothyreus* forms the posterior boundary of the ventral scutum, and upon which the posterior spiracles are placed. According to Lamy it is a median vestibule into the extremities of which the lateral tracheal systems open. This as I have shown is incorrect, since the spiracles are quite independent of one another, and each is separated from this transverse groove by well defined lips, and each is not (as shown in Lamy's figure) merely one of the chitinized extremities of a median, slit-like spiracle.

\* E. Lamy, Recherches sur les Trachées des Araignées, pp. 177-179 and figure, 1902.

In the *male* an entirely different state of things obtains. The sexual aperture is here represented by a central thimble-shaped opening, the apex of which is in front. On each side of this the epigastric and ventral scuta have fused, thus obliterating the rima genitalis in its lateral portions. The point of juncture is marked on each side by the anterior spiracles. The ventral scutum is here short, flat, and is terminated by a curved suture connecting the two posterior spiracles. This is homologous with the posterior border of the ventral scutum of the female, and with the transverse depressed band which occurs in the female of *Oonops pulcher*. Immediately behind this, and only separated by it from the ventral scutum with which it is fused, is a huge conical scutum, which reaches down beyond the middle of the ventral surface of the abdomen. This may be described as a second ventral scutum, or in terms of human anatomy as an umbilical scutum. It is not represented in the female.

The arrangement of these scuta will be understood immediately if figures 10, 11, and 12 be examined. To make the drawings, most of the protecting and concealing hairs were removed.

The SPINNERS are six in number, two-jointed, terminal, and arranged in a close bundle. Just above them the integument of the ventral surface of the abdomen is strongly chitinous, and forms a distinct curved ridge. This, no doubt, represents feebly the inframammillary scuta possessed by several allied genera. It varies in development in different individuals, but is always difficult to see. The spinners thus appear to spring from a cup-shaped depression at the posterior end of the body. Their bases seem to be developed in membrane, which also appears to form a sort of pedicle from which they spring.

At the beginning of October Mr. Bagnall sent me a pair of adult examples of *Ischnothyreus velox*. He had discovered them in a hot conservatory at Alnwick. A day or two later I paid a visit to Dickson's nurseries at Chester, and had a hunt



for the species. Mr. Simcoe piloted me to a certain rather old greenhouse filled with tropical plants, such as Crotons, Tradescantias, etc. In this house I found one or two adult males, six or eight adult females, and many immature examples. The temperature of this hothouse ranges from  $75^{\circ}$  to  $95^{\circ}$  in summer, and from  $55^{\circ}$  to  $65^{\circ}$  in winter. It has, however, been known to go down as low as  $48^{\circ}$  without presumably injuring the spiders much. Most of the exotic plants reach Dickson's nurseries via the Continent, and Mr. Simcoe informs me that no direct importation from the tropics has been placed in that house for a very long time, if at all. In December Mr. Bagnall sent me a female and several immature specimens from a hothouse at Kew Gardens in London. The temperature of this house was about  $75^{\circ}$  on the occasion that he visited it. In the Chester locality the spiders were found running on the flower pots and benches, amongst the tan that strews the latter, and inside the flower pots on the stalks of the plants. They are exceedingly fleet of foot, and their movements somewhat resemble those of our indigenous *Oonops pulcher* (Templ.) That is to say, they consist of a series of rapid dashes made in different directions with momentary halts between.

The genus *Ischnothyreus* has a very wide range, as it is known to occur in the West Indies, West Africa, Ceylon, and the Philippine Islands. It is divided into several groups. One of these is the group of *I. aculeatus* (Sim.) to which the present species belongs. There are three other species in this group, of which *I. aculeatus* (Sim.) inhabits the Philippine Islands, and the other two Ceylon. Of these *I. lymphaseus* (Sim.) is distinguished by its much smaller size and its large dorsal scutum covering the whole abdomen. M. Simon\* records the fact that this spider and another exotic Oonopid occur in the greenhouses of the Paris Museum, where they appear acclimatised. *I. bipartitus* (Sim.) has the dorsal scutum bisected by a dark-coloured transverse band. The present species is closely allied to *I. aculeatus* (Sim.), but the males can be

\* Histoire Naturelle des Araignées, vol. ii., Supplément Général, p. 983.

distinguished from the fact that those of the latter species are described as possessing a pair of lateral processes springing from the labium and separating the maxillæ of each side from the anterior border of the sternum. Such are completely absent in *I. velox*. The females are distinguished by the spiny armature of the anterior femora. These joints bear some long, strong, spines on the inner side near the apex. There are three of these in the females of *I. aculeatus*, and two only in the present species. M. Simon kindly examined my specimens. He informed me as to the difference in the females, and stated that in his opinion the present specimens belonged to an undescribed species. It has been found, as before stated, in London, Chester, and Alnwick, and is thus at least wide-spread in Britain. The fact that individuals of all ages were found shows that it is breeding in this country. It is almost certain that it would be found in other localities if hot greenhouses were investigated. It is, of course, not indigenous to this country, but appears to be obtaining a footing here; at any rate it is as much of a native as *Hasarius adansonii* (Sav.) and possibly *Theridion tepidariorum* (C. L. Koch) and *Pholcus phalangioides* (Fuess.) It is so unlike anything else we possess, and so interesting in its structure, that I have ventured to deal with it more fully than would have been the case had it been more commonplace.

**Bianor ænescens** (Sim.) Plate IV., figs. 1, 2, 3 and 30 d.

Mr. W. H. Bennett obtained two females of this interesting spider by sweeping herbage near Hedley in Surrey during June, 1907. The species has occurred in France, Germany, Poland, Galicia, and Sweden, but this is its first British record. The spider is of a somewhat elongated form, and of a dark grey colour. Under the microscope it is seen to be covered with a coating of short, somewhat squamous, hoary hairs. The abdomen above shows a very indistinct median pattern. This consists of a central fascia with three or four consecutive lateral processes. Between these processes are a series of

yellowish brown spots. The first two of these are single, but the posterior ones are multiple, the spots being arranged in oblique rows, running downwards and outwards, and forming with their fellows of the opposite side very indistinct and imperfect chevron marks. In the centre of the cephalothorax, between the two posterior eyes, is a small oval depression. The three posterior pairs of legs are fairly slender, but the anterior pair is much modified. In each leg the femur, patella, and tibia are very much thickened, and being nearly black in hue contrast strongly with the metatarsus and tarsus, which are slender and of a pale yellowish brown colour. Each tibia and metatarsus bears beneath two parallel rows of strong spines, of which three pairs are carried by the tibia, and two by the metatarsus. The vulva is quite characteristic, and on the plate I indicate the natural size of the animal, which is about 4 mm. in length. The Rev. O. Pickard-Cambridge and Professor Kulczynski, to each of whom I have submitted this spider, both concur as to its identity. The vulva somewhat resembles that figured by Bösenberg\*, but it is not easy to believe that his figures of the spider from above, and of one anterior leg, refer to the same species.

**Maro minutus (Camb.)** Plate IV., figs. 21, 22, 23, 24, 25.

Three males of this small species were captured in April and May at Huddersfield by Mr. Falconer. He had previously discovered the female, which was described and figured by Mr. Cambridge.† These males are thus new to science. They resemble the female in size, colour, and facies, and there appear to be no marked secondary sexual characters. The cephalothorax is rounded, and bears no ocular eminence or occipital gibbosity. Postocular depressions or striæ are not present. The relations of the eyes are similar in the two sexes. The palpi, however, are quite characteristic, this being specially noticeable when they are viewed from below. The

\* Die Spinnen Deutschlands, fig. 652, A, B, and C.

† "On Some New and Rare British Arachnida," Proc. Dors. Field Club, vol. xxvii., 1906, pp. 86-88, figs. 12-18.

apex of the palpal organs then shows three prominent teeth arranged in a rather peculiar position (see fig. 23). The male is about 1.1 mm. in length. Mr. Falconer also sent me a female obtained in Huddersfield this year, and I here give figures of its vulva. This was quite normally placed, but in the type described by Mr. Cambridge† it appears to have been situated very far back on the ventral surface of the abdomen. My specimen also seems rather larger than the one he figured, which was under 1 mm. in length. The absence of both spines on tibiæ IV., the absence of cephalic eminences or striæ in the male, the non-coriaceous integument, the short heart-shaped sternum, and the simple palpi of the female, would seem to point a close relationship between the genus *Maro* and the *Nerienne* group of M. Simon.

**Maro Falconerii** (sp. nov.). Plate IV., figs. 16, 17, 18, 19, and 20.

This little spider closely resembles *M. minutus* (Camb.). It is, however, slightly smaller, my largest example only measuring 1 mm., whilst the smallest was barely .9 mm. in length. In facies, colour, arrangement of eyes, relative length of legs, etc., the species are closely similar, the present however being, if anything, of rather a clearer yellowish brown than its congener. There is one secondary sexual character, viz., a strong prominent tooth on the anterior face of the basal joint of each falx. This is situated near the groove in which the fang lies, but in front of its anterior border. It is found only in the male, and its size varies considerably in different individuals. It is, however, quite easy to see in all my specimens of that sex.

The females of this species and *M. minutus* (Camb.) are easily distinguished by the total dissimilarity of the vulvæ—that of the present species being a trifle like the corresponding structure in *Tapinocyba præcox* (Camb.). This latter spider looks large and clumsy by the side of *M. Falconerii*.

† Op. cit.

The males can be separated readily by the presence of the aforesaid tooth on the falces, and by the differences in the palpi. If these appendages be viewed from below, it will be seen that the corneus apophyses, and teeth situated at the apex are quite differently arranged from the corresponding organs in *M. minutus* (see fig. 17). The tibiæ of the palpi, too, are quite different, those of *M. Falconerii* being a little produced over the tarsi; and the whole palpi are in the present species much slenderer and less massive than in its congener. Cephalic eminences and post-ocular striæ are not present.

I found both sexes of *Maro Falconerii* amongst moss in Delamere Forest, Cheshire, in May, 1907. After I had discovered that the species was new to science, Mr. Falconer sent me three examples of the female. One of these he had found in June, 1906, in Delamere Forest, whilst staying with me, the other two he obtained near Huddersfield in April, 1907. I have pleasure in connecting his name with this small and very interesting creature, which appears to me to be congeneric with *Maro minutus* (Camb.).

**Gongylidiellum paganum (Sim.)** Plate IV., figs 14 and 15.

A male and several females were sent to me by Mr. D. R. Pack-Beresford, by whom they were found on long grass and low bushes growing under fir trees in March, 1907, at Bagenalstown in County Carlow. The same gentleman also sent me several examples of both sexes which he had obtained at the same spot amongst leaf debris in the following October. Mr. Cambridge\* records the occurrence of a male captured near Huddersfield by Mr. Falconer. Later, Mr. Falconer sent me a female which at the time I supposed to be of this species, but which owing to doubts I did not record as such. I have compared this example with those Mr. Pack-Beresford caught in the company of males of *G. paganum* (Sim.), and there is no doubt as to their identity. I now record the occurrence of the

\* "On New and Rare British Spiders," Proc. Dors. Field Club, vol. xxiv., 1904, p. 165, fig. 7.



female in Yorkshire, and of both sexes from County Carlow. I also give figures of the vulva, as there are none in British literature. *G. paganum* is recorded by M. Simon\* for several localities in the South of France.

**Epiblemium affinitatum** (Camb.) Plate IV., figs. 4, 5, 6, and 30a.

A male and female were captured by Mr. W. H. Bennett on the trunk of a tree in Richmond Park, Surrey, in June. The species was described (but not figured) by the Rev. O. Pickard-Cambridge† from a male obtained in Dorsetshire in 1860. The female is new to Britain, and the present male is only the second on record for this country. I give figures of the palpi, and it will be seen how entirely the tibial apophyses differ from the corresponding structures in *E. scenicum* (Clerck) and *E. cingulatum* (Panz.). I also give drawings of the vulvæ of all three spiders to illustrate the fact that there is no difficulty in distinguishing the females of our three species of *Epiblemium*. Further, I show the comparative lengths of all three, of which the present is distinctly the smallest, my male being only 3·25 mm. in length, whilst examples of *E. cingulatum* and *E. scenicum* measured 5 mm. and 6 mm. respectively.

On sending these spiders to Mr. Cambridge, he at once recognised the male as being identical with his type of *E. affinitatum* (Camb.). The female was new to him, and as it was captured in the same locality as the male, and corresponds with it in general characters, they may reasonably be considered as conspecific. The specimens were then dispatched to Professor Kulczynski, who declared them identical with *E. zebraneum* (C. L. Koch.) But the original types of this species are not available; probably they are lost. Mr. Cambridge, however, has compared the present examples with *E. zebraneum* (C. L. Koch—L. Koch), *E. zebraneum* (C. L. Koch—E. Sim.), *E. tenerum* (C. L. Koch—Camb.) and other Continental species, and states that *E. affinitatum*

\* Les Arachnides de France, tome v., p. 603.

† Trans. Linnean Society, vol. xxvii., p. 399.

(Camb.) is distinct from all these. All that can be said therefore is that it is identical with *E. zebraneum* (C. L. Koch—Kulcz.), and therefore is rightly recorded under Mr. Cambridge's name.

**Typhochrestus digitatus** (Camb.). See figs. 26, 27.

Dr. R. de Lessert\* has shown that *T. digitatus* (Camb.) is identical with, and has priority over, *T. dorsuosus* (Camb.), and this is confirmed by Mr. Cambridge himself in letters to Dr. de Lessert and to myself.

**Cnephlocotes pusillus** (Menge—Carp.) } Plate IV.,  
**Typhochrestus dorsuosus** (Camb.) } figs. 28, 29.

I have been aware for some time that the supposed female of the former species figured by Dr. G. H. Carpenter† really belonged to the latter, and that there is no British description or figure of that sex. The species was described under *Microneta* by Menge‡ in 1868. His specimens were found at Heiligenbrunnen and Johannisberge by himself. He records both sexes, and figures amongst other points the vulva of the female. I have never seen this figure, but Mr. Cambridge most kindly copied it, and let me have his copy. It is very unlike what really obtains, and I believe Menge's figures relate to some other species. The species was next found at Nuremberg, and was redescribed by Mr. Cambridge§ under the name of *Erigone sila*. He did not however figure the vulva of the female. Simon|| describes the female, but all his figures only relate to the male. Chyzer and Kulczynski\*\* only mention and figure the male.

Dr. Carpenter's specimens were all found by myself at Southport, which is the only known British locality. The species occurs amongst the starr or marram grass on the sandhills,

\* Annales de la Société Zoologique Suisse, tome 15, fasc 1, p. 109, 1907.

† Annals and Mag. Nat. Hist., Ser. vii., vol. vi., Aug., 1900.

‡ Preuss. Spinn. III., p. 232, pl. xlv., f. 130.

§ Pro. Zool. Soc., Lond., 1872, p. 753. pl. lxx., f. 7.

|| Les Arachnides de France, tome v., p. 706.

\*\* Araneæ Hungariæ, vol. ii., p. 119, pl. iv., fig. 41.

and is there accompanied by *Typhochrestus digitatus* (Camb.). At first I associated the females of this spider (then known as *T. dorsuosus*, Camb.) with the males of *Cnephalocotes pusillus* (Menge), and Dr. Carpenter referred to and figured them under that name. Later I found at Southport the real female of *Cnephalocotes pusillus* (Menge), and here describe and figure it. It is certainly new to Britain, and probably to science, as I believe M. Simon has, like Dr. Carpenter, described the female of *T. digitatus* (Camb.) as that of the present species. I am led to this belief by reading his description of the vulva, and comparing it with that of both species. I now figure the vulva of each species.

The males of *Typhochrestus digitatus* have occurred in a good many localities. I have seen them from Southport, Wallasey, Glamorgan, North Wales, and Yorkshire; they are in these localities always accompanied by this female, which I have also found in Dorset (Portland), and near Hexham, in Northumberland. As before stated *C. pusillus* (Menge) has only occurred in Britain on the sandhills round Southport, where I have myself obtained both sexes. The two females are very easily separated both by general and sexual characters. Both are of about the same size, but *C. pusillus* is of squat form, the abdominal integument being coriaceous and forming rather indefinite dorsal and ventral scuta. Its sternum is very broad, the prolongation between the posterior coxæ being much broader than either of these joints. The legs are stout and thick, and all the tarsi, but especially the first pair, are slightly fusiform. The anterior row of eyes is, when viewed from the front, slightly but distinctly procurved, that is to say curved with the convexity behind. The posterior row, viewed from above, is curved in the same direction, but more strongly so.

In *T. digitatus* (Camb.) all these points are reversed. The spider is slenderer, with no coriaceous integument, and thin legs, the tarsi of which are not fusiform. The sternal prolongation is not wider than either of the posterior coxæ which it separates. The anterior row of eyes viewed from the front

is practically straight, and so is the posterior row seen from above. The facies of these spiders is quite different, as one would expect. The vulvæ, however, are so dissimilar that there is not the slightest difficulty in distinguishing the species by those structures alone. I here figure the vulvæ of both.

*Styloctetor uncinus* (Camb.)\*

*Styloctetor broccha* (L. Koch—Carp.)†

In 1904 I obtained several examples of a small spider by shaking moss on the summit of Scafell Pike. These were described by Mr. Cambridge under the former of these names. In 1905 the same species occurred to me in similar situations on the summit of Snowdon. Last year Dr. R. de Lessert kindly sent me some specimens of *S. broccha* (L. Koch) from Switzerland. These were strikingly unlike the British species. I dispatched a pair of Cumbrian examples to Dr. G. H. Carpenter, who compared them with the Irish specimen described under the latter name. He states that the two supposed species are identical, and therefore as *S. broccha* (Koch) is quite different from either of them, its name must, for a time at all events, disappear from the British list.

In addition to the above, the following interesting Arachnids have been observed during the year.

#### ARANEÆ

*Prothesima rustica* (L. Koch). Mr. Bennett obtained an adult male at Hastings in May. It was found on the cliffs at the roots of herbage.

*Drassodes sylvestris* (Bl.). An adult male was found at Guestling near Hastings in April. Its captor, Mr. Bennett, found it amongst dead leaves.

*Drassodes pubescens* (Thor.). I found a single male amongst herbage at Beer near Sidmouth in June.

\* Proc. Dors. Field Club, vol. xxvi., 1905, p. 65, 66, 67, plate A, figs. 22, 23, 24, 25.

† A List of the Spiders of Ireland, p. 165, 166.

**Gnaphosa anglica** (Camb.). A female was found amongst moss in a swamp in Delamere Forest on August 28th. Immature individuals had previously been found in the same locality.

**Clubiona corticalis** (Walck.). Adults of both sexes are not rare under the bark of trees growing on the banks of the river Dee. The males become mature at the end of April. Adult females may be found throughout the summer.

**Clubiona neglecta** (Camb.). Adult males were found at Sidmouth in June, and an adult female in August at Hawarden near Chester.

**Micaria scintillans** (Camb.). Females were found in June under stones on the Isle of Portland.

**Agroeca inopina** (Camb.). A mature male at the roots of herbage at Hastings in March. Mr. Bennett.

**Xysticus pini** (Hahn.). Common locally on gorse bushes in June. Sidmouth.

**Philodromus lineatipes** (Camb.). Mr. A. Newstead obtained a very young individual in August. New Forest.

**Philodromus fallax** (Sund.). Adults of both sexes on the sandhills at Wallasey on April 24th. In the previous year I had found the males almost over on May 9th.

**Hytia Nivoyii** (Luc.). Mature females at Sidmouth in South Devon, and from Hastings.

**Euophrys æquipes** (Camb.). A melanic specimen of the male was found in June on a tree trunk in Richmond Park, Surrey. Mr. Bennett.

**Phlegra fasciata** (Hahn.). Two adult females in June. Portland.

**Cœlotes atropos** (Walck.). An adult female under a stone near Sidmouth in South Devon. June.



*Coelotes terrestris* (Wid.). Mr. Cambridge\* records this species as having been taken by me in Northumberland. This is a mistake, the examples mentioned having been found by Mr. Bennett near Hastings, as previously recorded by me.†

*Hahnia candida* (Sim.). A mature female in June. Portland.

*Hahnia pusilla* (C. L. Koch). Adults of both sexes in May, and again in September, in Delamere Forest, Cheshire.

*Dolomedes fimbriatus* (Walck.). Mr. A. Newstead obtained several immature individuals in August in the New Forest.

*Lycosa arenicola* (Camb.). Both sexes were found amongst stones just above high water mark at Sidmouth and Beer. June.

*Pholcus phalangioides* (Fuess.). Outhouses in June. Sidmouth.

*Theridion impressum* (L. Koch). Adults of both sexes were obtained by beating gorse bushes in July. Delamere Forest.

*Theridion aulicum* (C. L. Koch). A male and two females were beaten from gorse bushes on the Sidmouth cliffs in June.

*Theridion Blackwallii* (Camb.). An immature female was captured by Mr. Bennett in Richmond Park, Surrey. June. I submitted this example to Mr. Cambridge.

*Euryopis flavomaculatum* (C. L. Koch). This spider occurs amongst moss and dead leaves, and is adult in May and June. Mr. Bennett found it at Bexhill, Sussex, and it also occurred in Delamere Forest.

\* "On Some New and Rare British Arachnida," Proc. Dorset Field Club, vol. xxviii., 1907.

† "On Some Rare Arachnids," Proc. Chester Nat. Hist. Soc., part vi., no. i., 1907.

- Laseola inornata* (Camb.). Adults of both sexes were found under stones on the Isle of Portland on June 11th. Only three males were obtained, but the females were numerous.
- Laseola jucunda* (Camb.). Three males and three females were taken in the same situation, and on the same date.
- Crustulina sticta* (Menge). Numerous adult females and immature males were found by Mr. Bennett under tidal refuse at Rye harbour in the autumn of 1907. All were of the black form.
- Robertus neglectus* (Camb.). Two mature males were captured amongst decaying hay on September 1st by Mr. Britten near Penrith.
- Ceratinella scabrosa* (Westr.). Both sexes occurred in May near Chester, and Mr. Bennett in the same month obtained males and females near Hastings.
- Troxochrus cirrifrons* (Camb.). A single male amongst litter in a stable in Delamere Forest. This is the first local record for this species, and I have not yet found *T. scabriculus* (Westr.) in the district, though it occurs at Wallasey on the sandhills.
- Areoncus crassiceps* (Westr.). A mature male and several females were found amongst moss at Newton Moss near Penrith at the end of June. Mr. Britten was the captor.
- Diplocephalus Beckii* (Camb.). A mature female from Egglestone in Teesdale by Mr. Bagnall, and another by myself in a barn in Delamere Forest. Both sexes by Mr. J. C. Varty-Smith from Edenhall, Cumberland.
- Tapinocyba insecta* (L. Koch.). A single female from Bexhill, Sussex, by Mr. W. H. Bennett. The specimen was obtained amongst dead leaves in August. The only previous British records were Northumberland and Yorkshire.
- Tapinocyba præcox* (Camb.). A female from Delamere Forest on April 28th, and a male from the same locality on November 7th. This little species is found amongst moss.

**Tapinocyba subitanea** (Camb.). Both sexes were obtained amongst litter in a barn in Delamere Forest in September. I have also received the species from Cumberland and Sussex.

**Lophomma laudatum** (Camb.). A single female at Sidmouth in June.

**Styloctetor penicillatus** (Westr.). An adult male at Chester on September 24th, and another from Edenhall, Cumberland, in October.

**Entelecara Jacksonii** (Camb.). An adult male in Delamere Forest on April 19th, and another on August 28th.

**Thyreosthenius biovatus** (Camb.). Mr. Bagnall obtained an adult male and a young female at Rowlands Gill, in the Derwent Valley, County Durham. These were found amongst herbage. There were no nests of *Formica rufa* in their immediate neighbourhood, and no specimens of that ant were observed in the locality.

**Tigellinus furcillatus** (Menge.). An adult female was found by Mr. Falconer, near Staward Peel, Allendale, Northumberland. A fine addition to the fauna of the county.

**Trichoncus saxicolus** (Camb.). Adults of both sexes under stones and amongst herbage on the Isle of Portland. June 11th.

**Tmeticus firmus** (Camb.). Both sexes occurred in Delamere Forest, where the females may be found throughout the year. A male, scarcely adult, was obtained on August 5th, and subsequently examples of the same sex were taken on August 18th and September 28th.

**Centromerus emptus** (A. R. J.) This spider was again found at Oakmere, Cheshire, on March 6th, April 19th, and November 7th. Adult males were obtained on each occasion. They seem to be able to withstand the rigours of winter, as they were not rare on the first date.

**Porrrhomma microphthalmum** (Camb.). Mr. Pack-Beresford found a female at Fenagh, County Carlow, in the winter. Both sexes were also obtained by him in the Island of Lambay. These were, however, recorded as belonging to the next species.\*

**Porrrhomma errans** (Bl.). Mr. Pack-Beresford found two females at Fenagh in spring. They were running on iron railings. These possess the distinct abdominal pattern and strong metatarsal spines noted by the late F. O. P. Cambridge.†

**Taranucnus setosus** (Camb.). A male at Delamere on April 28th, and both sexes on May 22nd, in the same locality. They were found amongst long grass and herbage, on the swampy banks of the lake at Hatchmere.

**Linyphia insignis** (Bl.). Mr. Bennett found both sexes freely at Hastings in October. This spider is supposed to be rare in the southern counties. A single female occurred in Delamere Forest in September.

**Epeira Redii** (Scop.). Females occurred in June amongst tall herbage on the cliffs at Sidmouth.

**Dictyna variabilis** (C. L. Koch). Both sexes near Hastings in June. Common in the same month on bushes and herbage at Sidmouth.

### PHALANGIDEA

**Sclerosoma quadridentatum** (Cuv.). Immature individuals in June. Sidmouth. Adults also from Hastings.

**Sclerosoma romanum** (L. Koch). Mr. Bennett obtained examples by searching at the roots of herbage in March and November. Hastings.

**Oligolophus Meadii** (Camb.). Immature individuals from Penrith in August. Mr. Britten. Also in Delamere Forest.

\* Irish Naturalist, vol. xvi., p. 63, 1907.

† Annals and Mag. Nat. Hist., vol. xiii., series 6, 1894, p. 100.

*Oligolophus Hansenii* (Kræp.). Mr. Bennett found an adult female at Hastings in October. Mr. Britten took both sexes at Penrith in the same month. His examples were found on the tips of the branches of conifers.

*Anelasmacephalus Cambridgii* (Westr.). A single specimen was found under a stone on the Isle of Portland. Mr. Cambridge\* records this species as having been taken by me in Cheshire. The specimens were really found by Mr. Bennett in Sussex.

### CHERNETIDEA

*Chernes rufecolus* (Sim.). This form appears widely distributed, and occurs amongst stable refuse. Mr. Falconer obtained a male at Haltwhistle, Mr. Britten both sexes at Penrith, and I found both sexes in a cowshed in Delamere Forest.

*Chernes nodosus* (Schranck). Mr. Shufflebottom of Chester took between twenty and thirty specimens in Hoole. All these were attached to the legs of flies caught on fly papers. Fly papers in several other parts of Chester did not yield any specimens of the Arachnid. All these examples were obtained in August and September. All were attached to the legs of the housefly, and in no case was any other Chernetid found in such a situation. On one fly were two examples of *C. nodosus*. At the end of September when the wet weather commenced the supply suddenly ceased, although flies were still numerous. In December, Mr. F. J. Cole, of University College, Reading, sent me fifty-five examples of this species. These were not taken by himself, and he does not know where they were found.

*Chernes cimicioides* (Fabr.). One adult and two very young examples were found under the bark of an old oak tree growing on the banks of the River Dee. September.

\* "On Some New and Rare British Arachnida," Proc. Dorset Field Club vol. xxviii., 1907.



**Chiridium museorum** (Leach). Mr. Varty-Smith found several adults under pieces of mortar in a barn at Newton Arlosh, Cumberland, in October. In September I obtained several specimens amongst refuse in the same cowshed in which *C. rufescens* (Sim.) occurred. The present species occurred upstairs in the loft, and the latter on the ground floor. Fly papers were hung up in both situations, and on them flies of various species were caught, but in no case was either of the species of Chernetid found attached to them.

**Roncus lubricus** (L. Koch). A single example from Reading. Mr. F. J. Cole.

**Chthonius tetrachelatus** (Preyss.). Mr. Bagnall found both sexes under boards in cool greenhouses at Newcastle in October. In November I obtained examples in similar situations in Dickson's Nurseries, Chester.

**Chthonius tenuis** (L. Koch). Mr. Bennett found about a dozen examples amongst fallen pine needles near Hastings, and at Bexhill. He also obtained an example at Esher in Surrey. The species occurred both in autumn and early summer.

**Chthonius Rayii** (Koch), Mr. Bagnall obtained this animal in July at Bishopston in Clydesdale. I found one or two specimens in June in the Isle of Portland. All these examples were found under stones.

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## APPENDIX

Mr. Bagnall sent to me in December, 1907, four examples of an interesting Arachnid which he obtained in a hot conservatory at the Botanic Gardens, Kew. I imagined that these might be Tartarides, so applied for assistance to Professor H. J. Hansen of Copenhagen. He most kindly sent me his monograph of the group.\* Subsequently I sent him one of the specimens, and he stated that although closely related to *Trithyreus Cambridgii* (Thor.) it belonged to an undescribed species. It was then too late to figure it in the present paper, but I resolved to describe it in an appendix, and hope to publish figures soon. Unfortunately all the specimens were females, and in this group the males are much more distinct from one another than are the examples of the former sex. I hope soon to obtain males from Kew. In January, 1908, Mr. H. Donisthorpe sent a female of the same species obtained by himself at Kew to Mr. Cambridge. This Mr. Cambridge sent to me, and it is undoubtedly conspecific with Mr. Bagnall's examples. It too is a female. The Tartarides are a small group, only fifteen species being previously known. They are related to the long-tailed Thelyphonidea. There is only one family known—the Schizomoidæ (Hansen). This is divided into two very similar genera, *Schizomus* (Cook) and *Trithyreus* (Kraepelin). The Tartarides are not indigenous to Britain or Europe. They have been found in California, Venezuela, West Indies, Sierre Leone, the Seychelles, Ceylon, Burma, Singapore, Malacca, the Philippines, New Guinea, and New Britannia. *Trithyreus Cambridgii* (Thor.), to which the present species is closely related, was found in Burma.

## GENUS TRITHYREUS (Kraepelin)

The second thoracic tergite shows a longitudinal, median, membranous suture. The flagellum (or tail-like appendage of the abdomen) is three-jointed.

\* The Tartarides, a tribe of the order Pedipalpi. By H. J. Hansen and W. Sörensen. London, William Wesley and Son, 28, Essex Street, Strand; also in Uppsala, Paris, and Berlin, 1905.

**Trithyreus Bagnallii**, sp. nov.

LENGTH.—An adult female measured 3.1 mm. exclusive of the flagellum.

COLOUR.—The tergites of the caput, thorax, and abdomen are of a rich, shining dark brown, and have a slightly granular surface. The first abdominal tergite, however, is an exception, being very pale and difficult to see. The 8th and 9th abdominal sternites are almost as dark as the tergites, but all the other sternites, as well as the maxillæ and coxæ, are of a pale greyish yellow-brown. The 10th, 11th, and 12th segments of the abdomen form complete rings not divided into tergites and sternites. These segments, and the upturned flagellum they carry, are darker than the sternites, and paler than the tergites. The 12th, or last segment, bears on each side of the anus the dome-like opercula closing the apertures of the glandulæ odoriferæ. The soft parts separating the chitinous tergites and sternites, and intervening between them and the coxæ and between the various joints of the legs, are of a dirty whitish brown hue.

FLAGELLUM.—This is three-jointed, and measures about 2 mm. in length by about .5 mm. in breadth. It is cylindrical, or nearly so, in shape. The first joint is rather short and bears no setæ. The second joint is very short and bears eight or nine long setæ, each rising from a dome-like base. The third joint is longer than the sum of the other two, forming about three-fifths of the organ. It bears numerous long setæ.

EYES.—Two ocelli are present, placed on the caput above the bases of the palpi. Each is oval, but rather irregularly, being narrower in front than behind. Each is moderately convex when viewed in profile.

PALPI.—Not very slender. About 1.49 mm. in length exclusive of the maxillæ. Each is thus less than half the length of the body. The *trochanter* measures about .3 mm. in length. The anterior border is straight. The inferior border is broadly

produced in front, but this production is very short, being soon obliquely truncated. The truncation is parallel with the lower border of the patella when that joint is flexed fairly strongly on the femur. The posterior part of the lower border is gibbous, and provided with setæ. The base of the trochanter is constricted, stalk-like, and very narrow. The *femur* is .33 mm. long by .175 mm. broad. The lower margin is convex, the apex of the hump formed being about the centre. The *patella* is .33 mm. long by .12 mm. broad. The *tibia* is .33 mm. long, the *tarsus* .15 mm. long; and the *terminal claw* is curved, and about .075 mm. in length.

The FIRST LEGS are long, slender, and palpiform. The lengths of the joints are as follows:—*Trochanter* .25 mm., *femur* .8 mm., *patella* .95 mm., *tibia* .7 mm., *metatarsus* .25 mm., *tarsus* .35 mm. The terminal joint of the tarsus is longer than the next two taken together, but not as long as the next three. The total length of each first leg is 3.3 mm.

The FOURTH LEGS.—The total length is 2.75 mm. The lengths of the joints are as follows:—The *trochanter* .25 mm. The *femur* .75 mm. by .38 mm. broad; the femora are thus enormously thickened, and are hardly twice as long as broad. The *patella* and *tibia* together measure .9 mm. The *tarsus* and *metatarsus* together measure .85 mm. In colour the legs are brown, the femora, especially the fourth, being dark like the tergites, whilst the terminal joints are pale like the sternites.

*Trithyreus Bagnallii* differs from all known Tartarides (save one) in its possession of distinct, convex, vitreous ocelli. Of the other species some are quite blind, whilst others possess flat, badly defined eye-spots. *Trithyreus Cambridgii* (Thor.), however, possesses true eyes, but these are more convex than in the present species, and quite round. Professor Hansen informed me of this in a letter; he does not mention it in his monograph.\*

\* Op. cit.

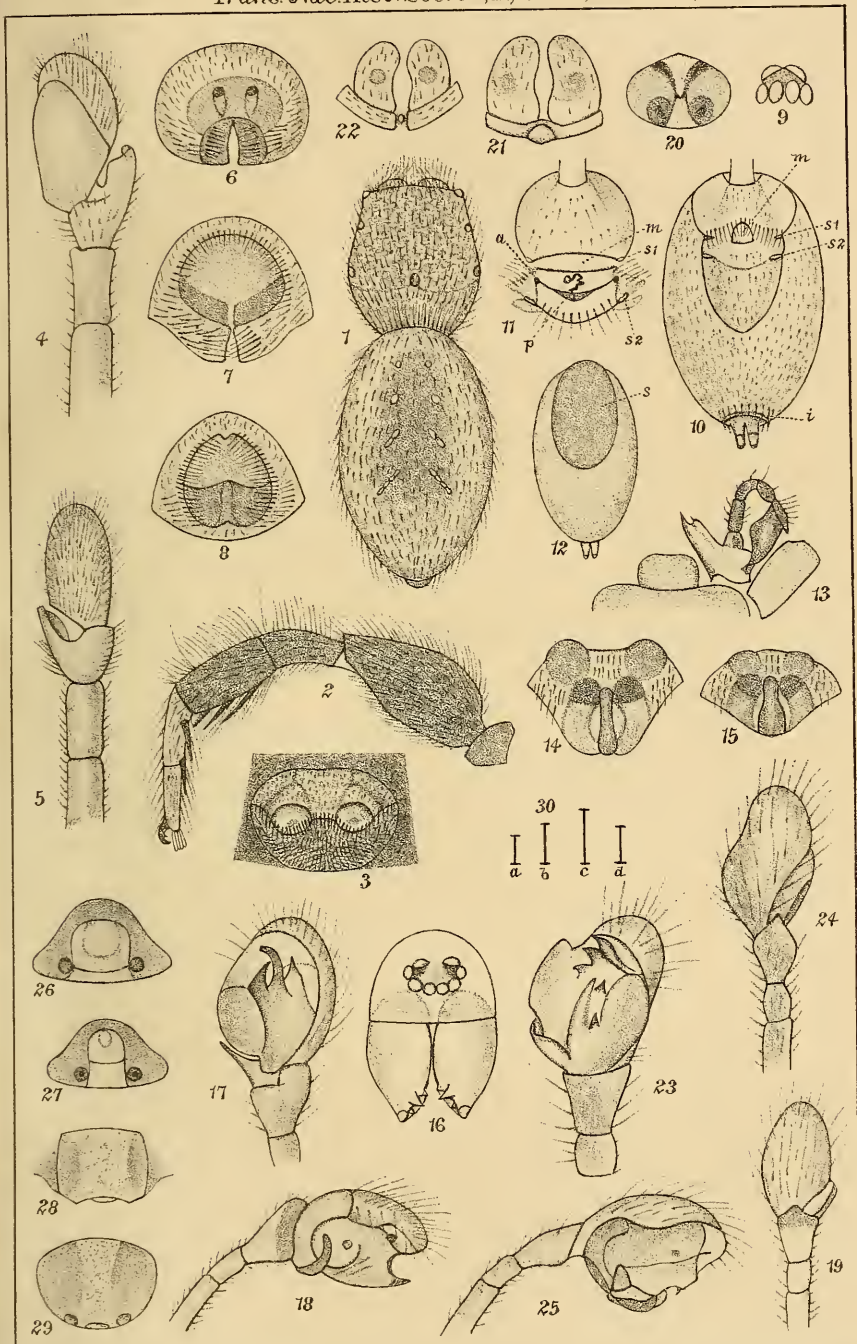
*T. Cambridgii* also differs from the present species in the fact that its palpi and fourth femora are slenderer, the latter being more than two and a half times longer than broad (deep). A further difference exists in the trochanter of the palpus, which in Thorell's species has the anterior part of its inferior border produced into an angular prominence. In the present species this is obliquely truncated. It is unfortunate that the males of neither species are known, as in that sex the flagellum is much modified and extremely different in closely allied species. As regards the present species I hope soon to obtain, describe, and figure the male.

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## EXPLANATION OF PLATE IV.

1. *Bianor ænescens* (E. Sim.). Female from above, all appendages removed.
2.       "                               One of the anterior legs seen in profile.
3.       "                               Vulva from below.
4. *Epiblemium affinitatum* (Camb.). Left palpus from below.
5.       "               "               Left palpus from above,
6.       "               "               Vulva from below.
7. *Epiblemium scenicum* (Clerck). Vulva from below.
8. *Epiblemium cingulatum* (Panz.). Vulva from below.
9. *Ischnothyreus velox*, sp. nov. Eyes from above.
10.       "               "               Abdomen of male from below,  $s_1$   
and  $s_2$  spiracles,  $m$  sexual aperture,  
 $i$  inframammillary ridge.
11.       "       "       "       Upper part of abdomen of female from  
below,  $s_1$  and  $s_2$  spiracles,  $m$  rima  
genitalis,  $a$  aperture of tubular gland,  
 $\phi$  boat-shaped process.
12.       "               "               Abdomen of male from above,  
 $s$  dorsal scutum.
13.       "               "               Maxillary palpus and labium of the  
male.
14. *Gongyliidiellum paganum* (E. Sim.). Vulva of female from below and  
in front.
15.       "               "               The same from below.
16. *Maro Falconerii*, sp. nov. Caput and falces of male from the front,  
showing the tooth.
17.       "               "               Right palpus of male from below.
18.       "               "               Ditto from outer side.
19.       "               "               Ditto from above.
20.       "               "               Vulva of female from below.
21. *Maro minutus* (Camb.). Vulva of female from below, and rather  
in front.
22.       "               "               Vulva of female from below.
23.       "               "               Right palpus of male from below.
24.       "               "               Ditto from above.
25.       "               "               Ditto from outer side.
- 26 and 27. *Typhochrestus digitatus* (Camb.). Vulvæ of two different  
individuals from below.
- 28 and 29. *Cnephalocotes pusillus* (Menge). Vulvæ of two different in-  
dividuals from below.
30. Indications of natural size of—  
  - a. *Epiblemium affinitatum* (Camb.), male.
  - b. *Epiblemium cingulatum* (Panz.), male.
  - c. *Epiblemium scenicum* (Clerck), male.
  - d. *Bianor ænescens* (E. Sim.), female.



A. Randell Jackson del.

W. West lith.

RARE ARACHNIDS.